City of Akron, Ohio

Greenhouse Gas Emissions Analysis

2005 Community Emissions Inventory
&
2005 Government Operations Emissions Inventory

September 2008

Credits and Acknowledgements

City of Akron, Ohio

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1 Introduction

On March 31, 2008, the City of Akron, Ohio Council adopted a resolution committing the City to taking action for climate protection (see Appendix 1 for a copy of the resolution). Through this resolution, the City recognized the "profound effect" that greenhouse gases emitted by human activity are having on the Earth's climate, as well as the City's opportunity to reduce these emissions, both through its government operations and by inspiring change throughout the community. Through energy efficiency in its facilities and vehicle fleet, alternative clean energy sources, waste reduction efforts, land use and transit planning, and other activities, the City of Akron, Ohio can achieve multiple benefits, including saving energy and money, reducing emissions, and preserving quality of life in our community. With the assistance of ICLEI – Local Governments for Sustainability, the City has begun its efforts to identify and reduce greenhouse gas emissions.

This document represents completion of the first milestone in ICLEI's five milestone process: conducting an inventory of greenhouse gas emissions. Presented here are estimates of greenhouse gas emissions resulting from our community as a whole, as well as those resulting from the City's internal government operations. Due to data availability, the community and government operations data is based on the year 2005. This data will provide a baseline against which we will be able to compare future performance, enabling us to demonstrate progress in reducing emissions.

1.1 Climate Change Background

A balance of naturally occurring gases dispersed in the atmosphere determines the Earth's climate by trapping solar heat. This phenomenon is known as the greenhouse effect. Modern human activity, most notably the burning of fossil fuels for transportation and electricity generation, introduces large amounts of carbon dioxide and other gases into the atmosphere. Collectively, these gases intensify the natural greenhouse effect, causing global average surface temperature to rise, which is in turn expected to affect global climate patterns.

Overwhelming evidence suggests that human activities are increasing the concentration of greenhouse gases in the atmosphere, causing a rise in global average surface temperature and consequent climate change. In response to the threat of climate change, communities worldwide are voluntarily reducing greenhouse gas emissions. The Kyoto Protocol, an international effort to coordinate mandated reductions, went into effect in February 2005 with 161 countries participating. The United States is one of three industrialized countries that chose not to sign the Protocol.

In the face of federal inaction, many communities in the United States are taking responsibility for addressing climate change at the local level. The community of the City of Akron, Ohio might be impacted by drought that would reduce the levels of water in the Great Lakes, by bad weather increasing air quality problems and leading to more incidence of pneumonia and respiratory illnesses, and more severe winter ice storms that could interrupt power transmission and increase property damage losses, as well as other changes to local and regional weather patterns and species migration. Beyond our community, scientists also expect changing

temperatures to result in more frequent and damaging storms accompanied by flooding and land slides, summer water shortages as a result of reduced snow pack, and disruption of ecosystems, habitats and agricultural activities.

1.2 The Communities for Climate Protection Campaign

By adopting a resolution committing the City to locally advancing climate protection, the City of Akron, Ohio has joined an international movement of local governments. More than 896 local governments, including over 450 in the United States, have joined ICLEI's Cities for Climate Protection (CCP) campaign.[1] In addition, the City of Cleveland, Ohio, located north of Akron, is a CCP participant.

The CCP campaign provides a framework for local communities to identify and reduce greenhouse gas emissions, organized along five milestones:

(1) Conduct an inventory of local greenhouse gas emissions;

(2) Establish a greenhouse gas emissions reduction target;

(3) Develop an action plan for achieving the emissions reduction target;

(4) Implement the action plan; and,

(5) Monitor and report on progress.

This report represents the completion of the first CCP milestone, and provides a foundation for future work to reduce greenhouse gas emissions in the City of Akron, Ohio.

2 Greenhouse Gas Emissions Inventory

The first step toward reducing greenhouse gas emissions is to identify baseline levels and sources of emissions in the City of Akron, Ohio, as well as the sectors of our community and government operations that are responsible for the bulk of these emissions. This information can later inform the selection of a reduction target and possible reduction measures.

2.1 Methodology and Model

ICLEI's Communities for Climate Protection methodology assists local governments to systematically track energy and waste related activities in the community, and to calculate the relative quantities of greenhouse gases produced by each activity and sector. The inventory methodology involves performing two assessments: a community-wide assessment and a separate inventory of government facilities and activities. The government operations inventory is a subset of the community inventory.

Once completed, these inventories provide the basis for the creation of an emissions forecast, and allow for the quantification of emissions reductions associated with proposed measures.

[1] ICLEI was formerly known as the International Council for Local Environmental Initiatives, but the name has been changed to ICLEI – Local Governments for Sustainability.

2.1.1 CACP Software

To facilitate community efforts to reduce greenhouse gas emissions, ICLEI developed the Clean Air and Climate Protection (CACP) software package with the State and Territorial Air Pollution Program Administrators (STAPPA), the Association of Local Air Pollution Control Officials (ALAPCO), and Torrie Smith Associates. This software calculates emissions resulting from energy consumption and waste generation. The CACP software determines emissions using specific factors (or coefficients) according to the type of fuel used. Greenhouse gas emissions are aggregated and reported in terms of equivalent carbon dioxide units, or CO_2e. Converting all emissions to equivalent carbon dioxide units allows for the consideration of different greenhouse gases in comparable terms. For example, methane is twenty-one times more powerful than carbon dioxide on a per molecule basis in its capacity to trap heat, so the CACP software converts one ton of methane emissions to 21 tons of carbon dioxide equivalents. The CACP software is also capable of reporting input and output data in several formats, including detailed, aggregate, source-based, and time-series reports.

The emissions coefficients and methodology employed by the CACP software are consistent with national and international inventory standards established by the Intergovernmental Panel on Climate Change (1996 Revised IPCC Guidelines for the Preparation of National Inventories) and the U.S. Voluntary Greenhouse Gas Reporting Guidelines (EIA form1605).

The CACP software has been and continues to be used by over 350 U.S. cities, towns, and counties to reduce their greenhouse gas emissions. However, it is worth noting that, although the software provides the City of Akron, Ohio with a sophisticated and useful tool, calculating emissions from energy use with precision is difficult. The model depends upon numerous assumptions, and it is limited by the quantity and quality of available data. With this in mind, it is useful to think of any specific number generated by the model as an approximation of reality, rather than an exact value.

2.2.2 Creating the Inventory

Our greenhouse gas emissions inventory consists of two essentially distinct inventories: one for the City of Akron, Ohio community as a whole, defined by our geographic borders, and one highlighting emissions resulting from the City of Akron, Ohio's internal government operations. The government operations inventory is a subset of the community inventory (the two are not mutually exclusive). This allows the government, which formally committed to reducing emissions, to track its individual facilities and vehicles, and to evaluate the effectiveness of its emissions reduction efforts at a more detailed level. At the same time, the community analysis provides a performance baseline against which we can demonstrate progress being made throughout the City of Akron, Ohio community.

Creating our emissions inventory required the collection of information from a variety of sources. (See Appendix 2 for inventory data source information.) Data from the year 2005 was used for the community inventory and for the government operations inventory.

When calculating the City of Akron, Ohio's emissions inventory, all energy consumed in the City of Akron, Ohio was included. This means that, even though the electricity used by City of Akron, Ohio residents is produced elsewhere, this energy and the emissions associated with it appears in the City of Akron, Ohio's inventory. The decision to calculate emissions in this manner reflects the general philosophy that a community should take full responsibility for the impacts associated with its energy consumption, regardless of whether or not the energy generation occurs within its geographic borders.

2.2 Inventory Results

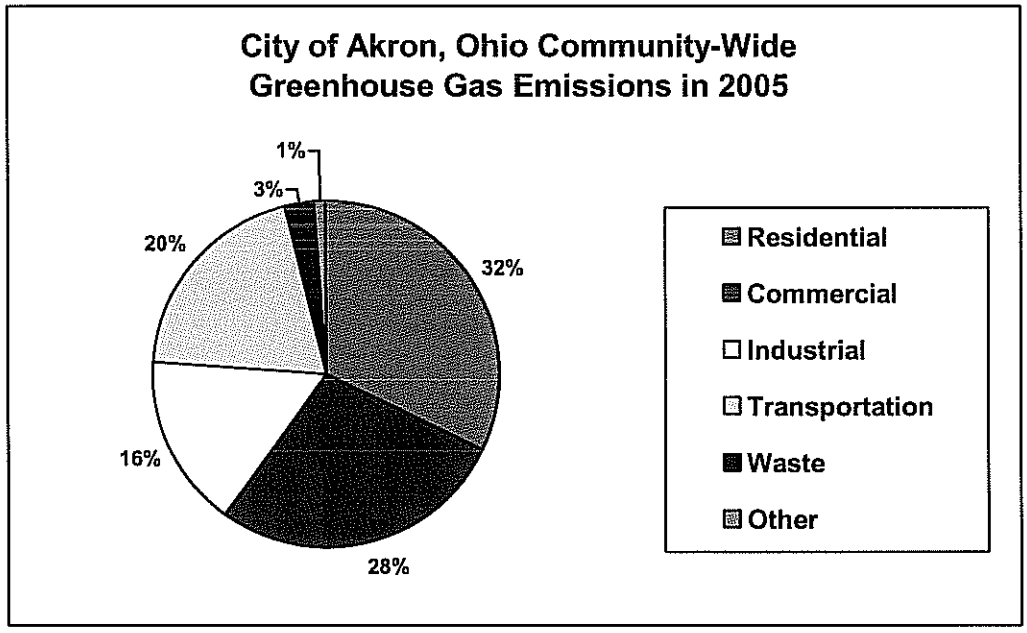
2.2.1 Community Emissions Inventory

In the base year 2005, the community of the City of Akron, Ohio emitted approximately 4,375,926 tons of CO_2e. As shown in Table 1, and illustrated in Figure 1, Residential use was the greatest contributor to greenhouse gas emissions at 32% of the total. Commercial use contributed 28%, Transportation contributed 20%, Industrial use contributed 16%, Waste contributed 3%, and Other sources contributed 1% of the community's total greenhouse gas output. (See Appendix 3 for a detailed report of the Community Greenhouse Gas Emissions in 2005.)

Table 1: City of Akron, Ohio Community-Wide Greenhouse Gas Emissions in 2005

Sector	Greenhouse Gas Emissions (tons CO_2e)	Energy Equivalent (MMBtu)
Residential	1,408,002	13,464,465
Commercial	1,219,457	8,933,318
Industrial	708,091	2,316,360
Transportation	873,454	10,181,314
Waste	120,960	0
Other	45,961	0
Total	**4,375,926**	**34,895,457**

Figure 1: City of Akron, Ohio Community-Wide Greenhouse Gas Emissions in 2005



The City of Akron, Ohio community's consumption of electricity and other fuels in local buildings and vehicles is also responsible for the release of criteria air pollutants, including NO_X, SO_X, CO, VOCs, and PM_{10}. As shown in Table 2, the Transportation sector contributed the most NOx, CO and VOC emissions, while the Other sector (which includes closed landfill and coal emissions) contributed the most SOx emissions, and the Commercial sector contributed the most PM_{10} emissions.

Table 2: City of Akron, Ohio Community-Wide Criteria Air Pollutant Emissions in 2005

Sector	NO_X (tons)	SO_X (tons)	CO (tons)	VOCs (tons)	PM_{10} (tons)
Residential	4,338,649	6,201,878	660,707	123,719	206,310
Commercial	4,878,593	13,685,929	8,449,889	1,481,890	1,728,737
Industrial	2,366,062	6,034,920	183,373	21,647	147,410
Transportation	6,002,119	322,311	46,130,583	4,808,928	174,166
Other	2,035,000	17,967,640	365,480	22,020	198,580
Total	**19,620,423**	**44,212,678**	**55,790,031**	**6,458,204**	**2,455,203**

2.2.2 Government Emissions Inventory

In the base year 2005, the City of Akron, Ohio's government operations generated approximately 119,573 tons of CO_2e. The City's Water/Sewage sector was responsible for the largest share of greenhouse gas emissions at 39%. The Buildings sector contributed 36%, the Streetlights sector contributed 13%, the Vehicle Fleet sector contributed 10%, and the Employee Commute sector contributed 2%. The Other sector, which includes emissions from the Akron Fulton Airport, contributed less than 1%.

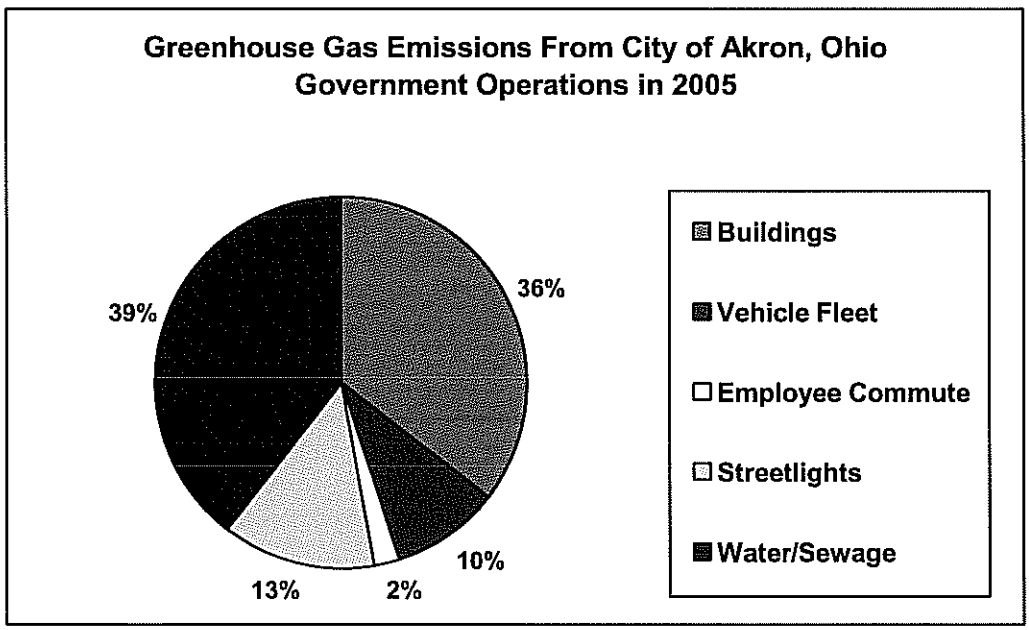
During 2005, the City of Akron, Ohio government spent approximately $8,326,192 on energy-related expenses for its Buildings, Vehicle Fleet, Streetlights, and Water/Sewage sectors. Beyond reducing harmful greenhouse gases, any future reductions in government operations' energy use have the potential to reduce this expense, enabling City of Akron, Ohio to reallocate limited funds toward other deserving causes. Table 3 and Figure 2 below illustrate the breakdown of government operations emissions and costs by source type. (See Appendix 4 for a detailed report of the Government Greenhouse Gas Emissions in 2005.)

It is important to note that Waste data for government operations was not available, and therefore is not included in the government operations inventory.

Table 3: City of Akron, Ohio Government Operations Emissions Summary in 2005

Sector	Greenhouse Gas Emissions (tons CO_2e)	Energy Equivalent (million Btu)	Cost ($)
Buildings	42,407	293,481	2,825,549
Vehicle Fleet	11,472	134,531	2,234,634
Employee Commute	2,499	29,238	0
Streetlights	15,867	48,379	560,802
Water/Sewage	47,214	176,476	2,705,206
Other	114	0	0
Total	**119,573**	**682,105**	**8,326,192**

Figure 2: Government Operations Greenhouse Gas Emissions in 2005



Government operations emissions in City of Akron, Ohio constitute about 3% of the community's total greenhouse gas emissions. This is not unusual; local government emissions typically account for around two percent of community levels. As a minor contributor to total emissions, actions to reduce government operations energy use will have a limited impact on the City of Akron, Ohio community's overall emissions levels. However, as previously mentioned, government action has symbolic value that extends beyond the magnitude of emissions actually reduced.

Tables 4, 5, 6 and 7 break down the Buildings, Vehicle Fleet, Streetlights, and Water/Sewage sectors into sub-sectors, and show the emissions and costs associated with each sub-sector.

Table 4: City of Akron, Ohio Building Energy Use Greenhouse Gas Emissions in 2005

Building Type	Greenhouse Gas Emissions (tons CO_2e)	Energy Equivalent (MMBtu)	Energy Cost ($)
Community Centers	4,445	24,862	312,766
Fire Stations	2,435	16,915	206,268
Office Facilities	16,233	139,316	1,183,721
Parking Decks	8,186	24,959	449,407
Parks	4,048	23,029	317,092
Service Facilities	6,846	63,748	339,453
Miscellaneous	214	654	16,843
Buildings Total	**42,407**	**293,481**	**2,825,549**

Table 5: City of Akron, Ohio Vehicle Fleet Greenhouse Gas Emissions in 2005

Vehicle Type	Greenhouse Gas Emissions (tons CO_2e)	Energy Equivalent (MMBtu)	Total Fuel Cost ($)
Equipment	750	8,702	157,188
Auto – Full-Size	2,498	29,772	480,678
Auto – Mid-Size	1,286	14,987	241,838
Auto – Sub-Compact/Compact	2	26	415
Heavy Trucks	4,098	47,521	815,887
Light Trucks/SUVs/Pickups	1,470	17,376	278,128
Motorcycles	10	118	1,968
Passenger Vehicles	371	4,334	70,348
Vanpool Vans	985	11,694	188,185
Vehicle Fleet Total	**11,472**	**134,531**	**2,234,634**

Table 6: City of Akron, Ohio Streetlights Greenhouse Gas Emissions in 2005

Lighting Type	Greenhouse Gas Emissions (tons CO_2e)	Energy Equivalent (MMBtu)	Energy Cost ($)
Street Lighting	15,049	45,885	513,154
Private Outdoor Lighting	24	72	6,162
Traffic Lights	533	1,624	25,298
Parking Lots	262	798	16,188
Streetlights Total	**15,867**	**48,379**	**560,802**

Table 7: City of Akron, Ohio Water/Sewage Greenhouse Gas Emissions in 2005

Facility Type	Greenhouse Gas Emissions (tons CO_2e)	Energy Equivalent (MMBtu)	Energy Cost ($)
Sewer CSO Racks	230	701	13,972
Sewer CSO Sampling Stations	13	39	1,394
Sewer Operation Facilities	25,454	90,325	1,407,870
Sewer Pump Stations	1,573	5,931	103,584
Water Operation Facilities	17,062	70,689	1,049,949
Water Tanks & Pump Stations	2,883	8,790	128,437
Water/Sewage Total	**47,214**	**176,476**	**2,705,206**

The City of Akron, Ohio was also responsible for the release of criteria air pollution in 2005, as shown on the following page in Table 8. These pollutants have been linked with various environmental and public health outcomes and many of the actions we might take to reduce greenhouse gas emissions will also have a positive impact in reducing these pollutants as well.

Table 8: City of Akron, Ohio Government Operations Criteria Air Pollutant Emissions in 2005

Sector	NO_X (lbs)	SO_X (lbs)	CO (lbs)	VOCs (lbs)	PM_{10} (lbs)
Buildings	190,696	614,119	219,411	36,321	60,974
Vehicle Fleet	74,719	3,459	350,003	36,795	2,479
Employee Commute	15,111	808	162,092	16,622	349
Streetlights	52,631	136,933	3,811	428	3,314
Water/Sewage	156,429	386,383	12,766	1,684	9,643
Other	1,259	152	0	8,721	4,734
Total	**490,845**	**1,141,854**	**748,083**	**100,572**	**81,493**

3 Conclusion

In passing a resolution to join the Communities for Climate Protection campaign, the City of Akron, Ohio made a formal commitment to reduce its emissions of greenhouse gases. This report lays the groundwork for those efforts by estimating baseline emissions levels against which future progress can be demonstrated.

This analysis found that the City of Akron, Ohio community as a whole was responsible for emitting approximately 4,375,926 tons of CO_2e in the base year 2005. The City of Akron, Ohio's own government operations were responsible for emitting approximately 119,573 tons of CO_2e in 2005. The City of Akron, Ohio's government operations account for roughly 3% of the community's total greenhouse gas emissions.

Following the ICLEI methodology, we recommend that the City of Akron, Ohio next forecast anticipated future emissions and engage in consideration of potential greenhouse gas reduction targets for both the community as a whole and internal government operations. The City should also begin to document emissions reduction measures that have already been implemented since the base years documented in this report, and to quantify the emissions benefits of these measures to demonstrate progress made to date.

Next, the City should begin to identify potential new emissions reduction measures that might be implemented in the future, including energy efficiency, clean energy, vehicle fuel efficiency or alternative fuel use, trip reduction strategies, waste reduction, and other projects. We feel confident that a number of opportunities exist for the City to reduce emissions while saving taxpayer dollars, improving efficiency, and reducing waste.

Appendix 1

City of Akron Climate Protection Resolution

MR/EBD/csw 3/26/08
Requested by the Department of Public Service

(14)

RECEIVED
CLERK OF COUNCIL
CITY OF AKRON

2008 MAR 26 AM 9:44

12

Offered By * MAYOR AND COUNCIL AS A WHOLE

RESOLUTION NO. 168 -2008 expressing support for the Cities for Climate Protection Campaign sponsored by ICLEI - Local Governments for Sustainability and encouraging Keep Akron Beautiful to take a leadership role in promoting public awareness about the causes and impacts of climate change; and declaring an emergency.

WHEREAS, scientific consensus has established that carbon dioxide (CO2) and other greenhouse gases released into the atmosphere have a profound effect on the Earth's climate; and

WHEREAS, 162 countries, including the United States, pledged under the United Nations Framework Convention on Climate Change to reduce their greenhouse gas emissions; and

WHEREAS, energy consumption, specifically the burning of fossil fuels, accounts for more than 80 percent of the United States greenhouse gas emissions; and

WHEREAS, local governments influence communities' emissions by exercising key powers over land use, transportation, construction, waste management, and energy management; and

WHEREAS, local government actions taken to reduce greenhouse gas emissions and increase energy efficiency provide multiple local benefits by decreasing air pollution, creating jobs, reducing energy expenditures, and saving money for the local government, its businesses and its residents; and

WHEREAS, ICLEI - Local Governments for Sustainability is an international membership association of local governments dedicated to addressing environmental issues through local action; and

WHEREAS, more than 350 cities, towns, and counties in the United States and more than 770 communities worldwide, are ICLEI members and participate in the Cities for Climate Protection (CCP) Campaign to reduce the pollution that causes global warming; and

WHEREAS, the City of Akron has been invited to become a partner in the CCP Campaign; and

WHEREAS, ICLEI provides programs, tools, software assistance and technical expertise to help local governments quantify and reduce their greenhouse gas emissions; and

WHEREAS, the Cities for Climate Protection (CCP) Campaign consists of five milestones:

Milestone 1. Conduct a local inventory and forecast of greenhouse gas emissions
Milestone 2. Adopt an emissions reduction target
Milestone 3. Draft an action plan to achieve the target
Milestone 4. Implement the action plan
Milestone 5. Evaluate, report on progress, and update plans

WHEREAS, the Greenprint for Akron has been drafted to guide the City of Akron as it progresses through the five milestones to reduce both greenhouse gas and air pollution emissions throughout the community.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Akron:

Section 1. That Council hereby expresses support for the Climate Protection Campaign sponsored by ICLEI - Local Governments for Sustainability and authorizes Keep Akron Beautiful, on behalf of the City of Akron, to take a leadership role in promoting public awareness about the causes and impacts of climate change and to seek the assistance of the CCP Campaign when necessary.

Section 2. That Council hereby adopts the Greenprint for Akron, a copy of which is attached as Exhibit A, designed to assist in creating an environmental partnership to foster a sustainable, eco-friendly community through education and leadership.

Section 3. That this resolution is hereby declared to be an emergency measure necessary for the immediate preservation of public peace, health, safety and welfare for the reason that immediate action is needed to create more vibrant and sustainable communities, and provided this resolution receives the affirmative vote of two-thirds of the members elected or appointed to Council, it shall take effect and be in force immediately upon its passage and approval by the Mayor; otherwise, it shall take effect and be in force at the earliest time allowed by law.

Passed March 31, 2008

Cheryl C. Brough
Clerk of Council

Marco A. Sommerville
President of Council

Approved April 7, 2008

MAYOR

Appendix 2

Data Sources

APPENDIX 2 – DATA SOURCES

Community Emissions Inventory Source Data for 2005

Community Aggregate Utility Data

Electricity Data: Electricity usage data was obtained by adding the usage for all accounts that were located within the Akron political boundary. Data was obtained from First Energy.

Contacts:
George Skulas, Senior Business Analyst - First Energy
Dennis Prough, Area Manager – Akron - Ohio Edison

Natural Gas Data: Natural Gas usage data was obtained by adding the usage for all accounts that were located within Akron zip codes. Note: Zip codes do not follow political boundaries so numbers reported may include usage outside of the City of Akron boundary. Data was obtained from Dominion.

Contact:
Tracy Stevens, External Affairs Manager - Dominion East Ohio

Steam Data: Steam usage data had to be entered by the fuel type used to generate the steam. The amount of each type of fuel (coal, wood, natural gas, tires, waste oil) used by Akron Thermal to generate steam was obtained from Frank Markunas, Akron Air Quality Management.

Contact:
Frank Markunas - Akron Air Quality Management

Community Transportation Data

Daily Vehicle-Miles for the Akron Area from the Federal Highway Administration Website - 2005 Highway Statistics Section V was obtained by contacting the Akron Metropolitan Area Transportation Study (AMATS) Office.

The daily VMT data reported in the statistics was for the Akron area, not just for the Akron jurisdictional limits. The data was converted to the Akron jurisdictional area only, as suggested by Ayrin Zahner of ICLEI, by obtaining the mileage of roads in Akron only broken down by type of road and calculating the proportion of roadway in Akron's jurisdiction by dividing the miles of road in Akron's jurisdiction by the total miles of road reported in the statistics for each road type. The VMT data reported for the area was multiplied by the proportion for each road type to convert the data to Akron's jurisdiction only. The Daily VMT was multiplied by 365 days to get a VMT for the whole year, and the VMT for the whole year for each road type was added to get a VMT total for 2005.

An Excel spreadsheet was used to make the calculations. A printout of the spreadsheet is included in the inventory data binder.

The 2005 VMT total was input into the Transportation Assistant. The default fuel/vehicle split was used.

Contacts:
Jeff Gardner and Amy Prater – AMATS
Ayrin Zahner - ICLEI

Community Waste Data

The City does not currently track the amount of waste collected within the City limits. Waste data was taken from an annual OEPA report that was provided by the Summit/Akron Solid Waste Management Authority (SASWMA) for all of Summit County. The data in the report was not broken down by municipality. Percentages of the waste contributed by Akron only were estimated using U.S. Population Census and Economic Census data reported for Summit County and Akron.

The Waste Share percentage data was taken from a Waste Characterization Study issued by the Ohio Department of Natural Resources Division of Recycling & Litter Prevention. The study data was provided by SASWMA.

Contacts:
Yolanda Walker and Marcie Kress - SASWMA

Community Other Data

Hardy Road Landfill Emissions Data – The actual emissions data for the closed landfill was obtained from the Akron Regional Landfill 2005 Annual Air Emissions Report. Steve Dubetz of Public Works Engineering Services provided a copy of the report.

Contact:
Steve Dubetz - Public Works Engineering Services

Coal Usage Data - Emissions data for facilities located within the City of Akron that burned coal was obtained from the "Title V Annual Fee Emissions Reports for 2005". Title V is a Federal/USEPA mandated permit program for major polluters administered by OEPA and its contractual agents. The Akron Air Quality Management Division is a contractual agent for OEPA. The report was obtained from the Air Quality Management Division. Emissions for coal usage at Cargill, Incorporated, Noveon Akron Chemical plant, and the Goodyear Tire & Rubber Company are included.

Contact:
Frank Markunas – Akron Air Quality Management

Government Operations Emissions Inventory Source Data for 2005

Government Operations Building Data

Sub-sectors: Community Centers, Fire Stations, Office Facilities, Parking Decks, Parks, Service Facilities, Miscellaneous

Electricity and Natural Gas Data: The First Energy and Dominion account numbers and facility addresses were obtained from a list of all City account numbers generated from utility bill payment spreadsheets provided by the Accounting Department. The electricity and gas usage information was provided by First Energy and Dominion through a query of the account numbers in their records.

First Energy also provided the cost of the electricity for each account number. The cost of the natural gas was calculated by multiplying the usage by the average cost natural gas in 2005, $10.59 per mcf, provided by Dominion.

The facility located at each account address was identified using the address, account descriptions, and the Akron GIS system.

Contacts:

Cindy Donel – Accounting
George Skulas, Senior Business Analyst - First Energy
Dennis Prough, Area Manager – Akron - Ohio Edison
Tracy Stevens, External Affairs Manager - Dominion East Ohio

Steam Data: The Akron Thermal account numbers and costs were obtained from copies of bills provided by the Accounting Department. Facility addresses were obtained by calling Akron Thermal.

Data had to be entered by the fuel type used to generate the steam. The steam usage information for the City facilities in M-LBS had to be converted to fuel type used. The total amount of each type of fuel (coal, wood, natural gas, tires, waste oil) used by Akron Thermal to generate steam in 2005 was obtained from Frank Markunas, Akron Air Quality Management Division. The total amount of steam produced by Akron Thermal in 2005 was obtained from Wade Woods of Akron Thermal by Frank Markunas.

The amount of each fuel used to generate one M-LB of steam heat in 2005 was calculated by dividing each amount of fuel used by the total amount of steam generated in 2005. The usage for each City account was multiplied by the fuel type/ M-LB ratio for each fuel type to calculate the amount of each fuel used to generate the steam used. The amount of each fuel used was entered into the software for each account. A printout of the spreadsheet used to make the calculations for each account is included in the inventory data binder.

Contact:
Cindy Donel - Accounting
Frank Markunas – Akron Air Quality Management
Wade Woods - Akron Thermal

Building data, including operating hours, number of occupants, and floor area, was obtained from Building Maintenance.

Contacts:
Randy Rose and Tom Harris – Building Maintenance

Government Vehicle Fleet Data

Sub-sectors: Equipment, Auto - Full-Size, Auto – Mid-Size, Auto – Sub-Compact/Compact, Heavy Trucks, Light Trucks/SUVs/Pickups, Motorcycles, Passenger Vehicles, Vanpool Vans

Equipment type, mileage, fuel quantity, and fuel cost information was obtained from the City of Akron Motor Equipment Bureau Vehicle Database. The data was compiled by the MIS Division.

The mileage for the City's contracted trash routes was estimated using route maps provided by Sanitation. The route map boundaries were also included in the City's GIS system. The GIS system was used to calculate the miles of roadway traveled by the contracted trash route trucks each week and then that number was converted to the number of miles traveled each year.

Contacts:
Jeff Walck - Motor Equipment
Jeff Crawford – MIS
Fabian Lujan - Sanitation

Employee Commute Data

The City Accounting Department generated daily commute data in miles from the commute information that is used to determine the payroll deduction for employees that drive a City car to and from work. An average of the daily commute miles was calculated. The average distance in miles was multiplied by the number of City employees in 2005 (obtained from the Personnel Department) less the number of employees that drive City cars, and multiplied by the number of working days (235 days) to get an estimate of the total employee commute miles. A breakdown by fuel type and vehicle type was not available. A midsize gasoline vehicle was used as an estimate. Note: This estimate includes employees that may utilize public transit, carpool, or other forms of transportation in the calculation.

Contact:
Cindy Donel - Accounting

Streetlights Data

Sub-sectors: Street Lights, Private Outdoor Lighting, Traffic Lights, Parking Lot

The First Energy account numbers and facility addresses were obtained from a list of all City account numbers generated from utility bill payment spreadsheets provided by the Accounting Department. The electricity usage information was provided by First Energy through a query of the account numbers in their records.

First Energy also provided the cost of the electricity for each account number.

The facility located at each account address was identified using the address, account descriptions, and the Akron GIS system.

Contacts:

Cindy Donel – Accounting
George Skulas, Senior Business Analyst - First Energy
Dennis Prough, Area Manager – Akron - Ohio Edison

Water/Sewage Data

Sub-sectors: Sewer CSO Racks, Sewer CSO Sampling Stations, Sewer Operation Facilities, Sewer Pump Stations, Water Operation Facilities, Water Tank & Pump Stations

The First Energy and Dominion account numbers and facility addresses were obtained from a list of all City account numbers generated from utility bill payment spreadsheets provided by the Accounting Department. The electricity and gas usage information was provided by First Energy and Dominion through a query of the account numbers in their records.

First Energy also provided the cost of the electricity for each account number. The cost of the natural gas was calculated by multiplying the usage by the average cost natural gas in 2005, $10.59 per mcf, provided by Dominion.

The facility located at each account address was identified using facility lists obtained from Sewer Maintenance, Public Utilities Bureau Utilities Engineering Division, the Water Plant and the Akron GIS system.

The quantity of wastewater treated and diesel fuel usage information was obtained from WPCS. The sewer pump station flow information was provided by Sewer Maintenance.

The quantity of water treated and diesel fuel usage information was obtained from Jeff Bronowski, Water Plant Engineer. The water pump station flow information was provided by the Public Utilities Bureau Utilities Engineering Division.

Contacts:

Cindy Donel – Accounting
George Skulas, Senior Business Analyst - First Energy
Dennis Prough, Area Manager – Akron - Ohio Edison
Dan Joseph – Sewer Maintenance
Gregg Loesch - PUB Utilities Engineering
Brian Gresser - WPCS Administrator
Jeff Bronowski - Water Plant

Other Data

Akron Fulton Airport – The emissions data was taken from an inventory for the airport obtained by Frank Markunas, Air Quality Division, from William Nichols, OEPA Division of Air Pollution Control.

Contacts:

Frank Markunas – Akron Air Quality Management
William (Nick) Nichols - OEPA Division of Air Pollution Control